



#7

SEQUENCE LISTING

<110> REBAR, Edward
JAMIESON, Andrew

<120> MODIFIED ZINC FINGER BINDING PROTEINS

<130> 8325-0025

<140> 10/055,711

<141> 2002-01-22

<160> 147

<170> PatentIn Ver. 2.0

<210> 1

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<213> Artificial Sequence

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<223> Description of Artificial Sequence: general sequence

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<221> SITE

<222> (2)..(5)

<223> where Xaa is any amino acid

<220>

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<222> (4)..(5)

<223> where Xaa may be present or absent

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<223> where Xaa is any amino acid

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<223> where Xaa is any amino acid

<220>

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<222> (23)..(24)

<223> where Xaa may be present or absent

<400> 1

Cys Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10 15

Xaa Xaa His Xaa Xaa Xaa Xaa Xaa His

7

20

25

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<220>
<223> Description of Artificial Sequence: canonical
consensus sequence

<220>
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<222> (1)..(3)
<223> where Xaa is any amino acid

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<222> (5)..(8)
<223> where Xaa is any amino acid

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<223> where Xaa may be present or absent

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<223> where Xaa may be present or absent

<220>
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<222> (31)..(34)
<223> where Xaa is any amino acid

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Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10 15

Xaa Xaa Xaa Xaa Xaa His Xaa Xaa Xaa Xaa Xaa Xaa Xaa His Xaa Xaa
20 25 30

Xaa Xaa

<210> 3
<211> 9
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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: target sequence

<400> 3
ggcgtagac

9

<210> 4
<211> 9
<212> DNA
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<223> Description of Artificial Sequence: target segment

<400> 4
ggcgacgta

9

<210> 5
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<220>
<223> Description of Artificial Sequence: peptide linker

<400> 5
Thr Gly Glu Lys Pro
1 5

<210> 6
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide linker

<400> 6
Gly Gly Gly Gly Ser
1 5

<210> 7
<211> 8

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<220>

<223> Description of Artificial Sequence: peptide linker

<400> 7

Gly Gly Arg Arg Gly Gly Gly Ser
1 5

<210> 8

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: peptide linker

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Leu Arg Gln Arg Asp Gly Glu Arg Pro
1 5

<210> 9

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: peptide linker

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Leu Arg Gln Lys Asp Gly Gly Gly Ser Glu Arg Pro
1 5 10

<210> 10

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: peptide linker

<400> 10

Leu Arg Gln Lys Asp Gly Gly Gly Ser Gly Gly Gly Ser Glu Arg Pro
1 5 10 15

<210> 11

<211> 12

<212> PRT

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: ZFP portion C2H2

<400> 11
His Ile Lys Thr His Gln Asn Lys Lys Gly Gly Ser
1 5 10

<210> 12
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: ZFP portion S

<400> 12
His Ser Glu Thr Gly Cys Thr Lys Lys Gly Gly Ser
1 5 10

<210> 13
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: ZFP portion E

<400> 13
His Leu Lys Ser Leu Thr Pro Cys Thr Gly Gly Ser
1 5 10

<210> 14
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: ZFP portion K

<400> 14
His Lys Cys Gly Ile Gln Asn Lys Lys Gly Gly Ser
1 5 10

<210> 15
<211> 12
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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: ZFP portion CT

<400> 15
His Ser Glu Asn Cys Gln Gly Lys Lys Gly Gly Ser
1 5 10

<210> 16
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: ZFP portion C

<400> 16
His Ile Lys Thr Cys Gln Asn Lys Lys Gly Gly Ser
1 5 10

<210> 17
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: ZFP portion GC

<400> 17
His Ile Lys Gly Cys Gln Asn Lys Lys Gly Gly Ser
1 5 10

<210> 18
<211> 12
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: ZFP portion GGC

<400> 18
His Ile Gly Gly Cys Gln Asn Lys Lys Gly Gly Ser
1 5 10

<210> 19
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: SP-1 consensus

<220>
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<222> (12)..(18)

<223> where Xaa is any amino acid

<400> 19

Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Xaa Xaa Xaa Xaa Xaa
1 5 10 15

Xaa Xaa His Gln Arg Thr His Thr Gly Glu Lys Pro
20 25

<210> 20

<211> 34

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<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: backbone F1

<220>

<221> SITE

<222> (18)..(24)

<223> where Xaa is any amino acid

<400> 20

Lys Lys Lys Ser Lys Gly His Glu Cys Pro Ile Cys Phe Arg Val Phe
1 5 10 15

Lys Xaa Xaa Xaa Xaa Xaa Xaa Xaa His Lys Arg Ser His Thr Gly Glu
20 25 30

Lys Pro

<210> 21

<211> 28

<212> PRT

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<220>

<223> Description of Artificial Sequence: backbone F2

<220>

<221> SITE

<222> (12)..(18)

<223> where Xaa is any amino acid

<400> 21

Tyr Lys Cys Thr Val Cys Gly Lys Ser Phe Ser Xaa Xaa Xaa Xaa Xaa
1 5 10 15

Xaa Xaa His Lys Arg Leu His Thr Gly Glu Lys Pro
20 25

<210> 22
<211> 23
<212> PRT
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<220>
<223> Description of Artificial Sequence: backbone F3

<220>
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<222> (12)..(18)
<223> where Xaa is any amino acid

<400> 22
Phe Ser Cys Asn Tyr Cys Gln Arg Lys Phe Tyr Xaa Xaa Xaa Xaa Xaa
1 5 10 15

Xaa Xaa His Val Arg Ile His
20

<210> 23
<211> 4
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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: sequence added to
C-terminus of F3

<400> 23
Gln Asn Lys Lys
1

<210> 24
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: helix-capping sequence

<220>
<221> SITE
<222> (4)
<223> where Xaa is 'Lys' or 'Arg'

<220>
<221> SITE
<222> (5)
<223> where Xaa is 'Lys' or 'Pro'

<400> 24

Thr Gly Glu Xaa Xaa

1 5

<210> 25

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: zinc finger backbone

<220>

<221> SITE

<222> (16)..(22)

<223> where Xaa is any amino acid

<400> 25

Lys Ser Lys Gly His Glu Cys Pro Ile Cys Phe Arg Val Phe Lys Xaa
1 5 10 15

Xaa Xaa Xaa Xaa Xaa Xaa His Lys Arg Ser His Thr Gly Glu Lys Pro
20 25 30

<210> 26

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<223> Description of Artificial Sequence: zinc finger backbone

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<222> (12)..(18)

<223> where Xaa is any amino acid

<400> 26

Tyr Lys Cys Thr Val Cys Gly Lys Ser Phe Ser Xaa Xaa Xaa Xaa Xaa
1 5 10 15

Xaa Xaa His Lys Arg Leu His Thr Gly Glu Lys Pro
20 25

<210> 27

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 <222> (12)..(18)
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 <400> 27
 Phe Ser Cys Asn Tyr Cys Gln Arg Lys Phe Gly Xaa Xaa Xaa Xaa Xaa
 1 5 10 15

 Xaa Xaa His Val Arg Ile His Gln Asn Lys Lys
 20 25

 <210> 28
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 <220>
 <223> Description of Artificial Sequence: oligonucleotide H1

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 <221> misc_feature
 <222> (25)..(45)
 <223> n = a, c, g or t

 <400> 28
 ctcaccggtg tgagaacgct tgtgnnnnnn nnnnnnnnnn nnnnncttga aaacacggaa 60

 <210> 29
 <211> 60
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: oligonucleotide H2

 <220>
 <221> misc_feature
 <222> (25)..(45)
 <223> n = a, c, g or t

 <400> 29
 ttcaccagta tgaagacgct tatgnnnnnn nnnnnnnnnn nnnnnagaaa aagacttacc 60

 <210> 30
 <211> 63
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: oligonucleotide H3

 <220>

<221> misc_feature
<222> (28)..(48)
<223> n = a, c, g or t

<400> 30
cttcttggtc tgggtggatac gcacgtgnnn nnnnnnnnnn nnnnnnnnac cgaacttacg 60
ctg 63

<210> 31
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: oligonucleotide PB1

<400> 31
aagtctaagg gtcacgagtg cccaatctgc ttccgtgttt tcaag 45

<210> 32
<211> 54
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: oligonucleotide PB2

<400> 32
tctcacaccg gtgagaagcc atacaagtgc actgtttgtg gtaagtcttt ttct 54

<210> 33
<211> 54
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: oligonucleotide PB3

<400> 33
cttcatactg gtgaaaagcc attctcttgc aactactgcc agcgtaagtt cggt 54

<210> 34
<211> 60
<212> DNA
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<220>
<223> Description of Artificial Sequence: PCR assembly finger F1

<400> 34
ctcaccgggtg tgagaacgct tgtgacgggt caactcgtca gaacgcttga aaacacggaa 60

<210> 35
<211> 60

<212> DNA
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 <223> Description of Artificial Sequence: PCR assembly finger F2

 <400> 35
 ttcaccagta tgaagacgct tatgacgggt caagtgggtca gaacgagaaa aagacttacc 60

 <210> 36
 <211> 63
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: PCR assembly finger F3

 <400> 36
 cttcttggtc tgggtgatac gcacgtgacg ggtcaagttg tcagaacgac cgaacttacg 60
 ctg 63

 <210> 37
 <211> 28
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 <223> Description of Artificial Sequence: primer PZF

 <400> 37
 cggggtacca ggtaagtcta aggggtcac 28

 <210> 38
 <211> 34
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 <223> Description of Artificial Sequence: primer PZR

 <400> 38
 gcgcggatcc acccttcttg ttctggtgga tacg 34

 <210> 39
 <211> 10
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 <223> Description of Artificial Sequence: ZFP #1 target

 <400> 39
 gtggacgagt 10

<210> 40
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<400> 40

Arg Ser Asp Asn Leu Ala Arg
1 5

<210> 41
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<400> 41

Asp Arg Ser Asn Leu Thr Arg
1 5

<210> 42
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<223> Description of Artificial Sequence: ZFP #1 F3

<400> 42

Arg Ser Asp Ala Leu Thr Arg
1 5

<210> 43
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<400> 43

cgggatgggt

10

<210> 44
<211> 7
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 <400> 44
 Arg Ser Asp His Leu Ala Arg
 1 5

 <210> 45
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 <213> Artificial Sequence

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 <400> 45
 Thr Ser Gly Asn Leu Val Arg
 1 5

 <210> 46
 <211> 7
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 <400> 46
 Arg Ser Asp His Leu Arg Glu
 1 5

 <210> 47
 <211> 10
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 tgggtgggtgt

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 <400> 48

10

Arg Ser Asp Ala Leu Thr Arg Met Ser
1 5

<210> 49
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Arg Ser Asp His Leu Thr Thr
1 5

<210> 50
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<400> 50
Arg Ser Asp His Leu Thr Thr
1 5

<210> 51
<211> 10
<212> DNA
<213> Artificial Sequence

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<400> 51
gaagaggatt

10

<210> 52
<211> 7
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<223> Description of Artificial Sequence: ZFP #4 F1

<400> 52
Gln Ser Ser Asn Leu Ala Arg
1 5

<210> 53
<211> 7
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<400> 53
Arg Ser Asp Asn Leu Ala Arg
1 5

<210> 54
<211> 7
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<223> Description of Artificial Sequence: ZFP #4 F3

<400> 54
Gln Ser Gly Asn Leu Thr Arg
1 5

<210> 55
<211> 10
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<400> 55
gaggaagggg

10

<210> 56
<211> 7
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Arg Ser Asp His Leu Ala Arg
1 5

<210> 57
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<400> 57

Gln Ser Gly Asn Leu Ala Arg
1 5

<210> 58

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<223> Description of Artificial Sequence: ZFP #5 F3

<400> 58

Arg Ser Asp Asn Leu Thr Arg
1 5

<210> 59

<211> 9

<212> DNA

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<400> 59

tgggtagtc

9

<210> 60

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<400> 60

Glu Arg Gly Thr Leu Ala Arg
1 5

<210> 61

<211> 7

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<223> Description of Artificial Sequence: ZFP #6 F2

<400> 61

Gln Ser Gly Ser Leu Thr Arg
1 5

<210> 62
<211> 7
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<400> 62
Arg Ser Asp His Leu Thr Thr
1 5

<210> 63
<211> 10
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<220>
<223> Description of Artificial Sequence: ZFP #7 target

<400> 63
ggggaaaggg

10

<210> 64
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<400> 64
Arg Ser Asp His Leu Thr Gln
1 5

<210> 65
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<220>
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<400> 65
Gln Ser Gly Asn Leu Ala Arg
1 5

<210> 66
<211> 7
<212> PRT
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<400> 66
Arg Ser Asp His Leu Ser Arg
1 5

<210> 67
<211> 10
<212> DNA
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<220>
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<400> 67
gaagagggtg

10

<210> 68
<211> 7
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<400> 68
Gln Ser Ser His Leu Ala Arg
1 5

<210> 69
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<223> Description of Artificial Sequence: ZFP #8 F2

<400> 69
Arg Ser Asp Asn Leu Ala Arg
1 5

<210> 70
<211> 7
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<223> Description of Artificial Sequence: ZFP #8 F3

<400> 70

Gln Ser Gly Asn Leu Ala Arg
1 5

<210> 71

<211> 10

<212> DNA

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<400> 71

gaggaggatg

10

<210> 72

<211> 7

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<223> Description of Artificial Sequence: ZFP #9 F1

<400> 72

Gln Ser Ser Asn Leu Gln Arg
1 5

<210> 73

<211> 7

<212> PRT

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<223> Description of Artificial Sequence: ZFP #9 F2

<400> 73

Arg Ser Asp Asn Ala Leu Arg
1 5

<210> 74

<211> 7

<212> PRT

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<223> Description of Artificial Sequence: ZFP #9 F3

<400> 74

Arg Ser Asp Asn Leu Gln Arg
1 5

<210> 75
<211> 10
<212> DNA
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<220>
<223> Description of Artificial Sequence: ZFP #10 target

<400> 75
gaggaggagg

10

<210> 76
<211> 7
<212> PRT
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<220>
<223> Description of Artificial Sequence: ZFP #10 F1

<400> 76
Arg Ser Asp Asn Ala Leu Arg
1 5

<210> 77
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: ZFP #10 F2

<400> 77
Arg Ser Asp Asn Leu Ala Arg
1 5

<210> 78
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: ZFP #10 F3

<400> 78
Arg Ser Asp Asn Leu Thr Arg
1 5

<210> 79
<211> 10
<212> DNA
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<220>
<223> Description of Artificial Sequence: ZFP #11 target

<400> 79
gtggcggctg

10

<210> 80
<211> 7
<212> PRT
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<220>
<223> Description of Artificial Sequence: ZFP #11 F1

<400> 80
Gln Ser Ser Asp Leu Arg Arg
1 5

<210> 81
<211> 7
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<220>
<223> Description of Artificial Sequence: ZFP #11 F2

<400> 81
Arg Ser Asp Glu Leu Gln Arg
1 5

<210> 82
<211> 7
<212> PRT
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<220>
<223> Description of Artificial Sequence: ZFP #11 F3

<400> 82
Arg Ser Asp Ala Leu Thr Arg
1 5

<210> 83
<211> 9
<212> DNA
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<220>
<223> Description of Artificial Sequence: ZFP #12 target

<400> 83
tggggagat

9

<210> 84
<211> 7
<212> PRT
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<220>
<223> Description of Artificial Sequence: ZFP #12 F1

<400> 84
Gln Ser Ser Asn Leu Ala Arg
1 5

<210> 85
<211> 7
<212> PRT
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<220>
<223> Description of Artificial Sequence: ZFP #12 F2

<400> 85
Gln Ser Gly His Leu Gln Arg
1 5

<210> 86
<211> 7
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: ZFP #12 F3

<400> 86
Arg Ser Asp His Leu Thr Thr
1 5

<210> 87
<211> 9
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<223> Description of Artificial Sequence: ZFP #13 target

<400> 87

gaggaagct

9

<210> 88

<211> 7

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<223> Description of Artificial Sequence: ZFP #13 F1

<400> 88

Gln Ser Ser Asp Leu Arg Arg

1

5

<210> 89

<211> 7

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<223> Description of Artificial Sequence: ZFP #13 F2

<400> 89

Gln Ser Gly Asn Leu Ala Arg

1

5

<210> 90

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<223> Description of Artificial Sequence: ZFP #13 F3

<400> 90

Arg Ser Asp Asn Leu Thr Arg

1

5

<210> 91

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<400> 91

gcttggtggct

10

<210> 92

<211> 7

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<223> Description of Artificial Sequence: ZFP #14 F1

<400> 92
Asp Arg Ser His Leu Thr Arg
1 5

<210> 93
<211> 7
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<220>
<223> Description of Artificial Sequence: ZFP #14 F2

<400> 93
Thr Ser Gly His Leu Thr Thr
1 5

<210> 94
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<223> Description of Artificial Sequence: ZFP #14 F3

<400> 94
Gln Ser Ser Asp Leu Thr Arg
1 5

<210> 95
<211> 10
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<223> Description of Artificial Sequence: ZFP #15 target

<400> 95
gtagtggatg

10

<210> 96
<211> 7
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<223> Description of Artificial Sequence: ZFP #15 F1
 <400> 96
 Gln Ser Ser Asn Leu Ala Arg
 1 5

 <210> 97
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 <223> Description of Artificial Sequence: ZFP #15 F2
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 Arg Ser Asp Ala Leu Ser Arg
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Gly Glu Arg
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Asp His Leu Thr Arg His Lys Arg Thr His Thr Gly Glu Lys
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